

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): An ~~A-vehicle~~ occupant sensor apparatus for a vehicle, said apparatus comprising:

means for modulating a scanned occupant beam;

means for mapping occupant contours in response to the modulated beam, said means for mapping comprising a moveable reflective member, said movable reflective member being movable relative to the vehicle for directing the modulated beam across a scan area located at an occupant seating location of the vehicle; and

means for determining an occupant characteristic in response to the mapped contours.

Claim 2 (Original): An apparatus as set forth in claim 1, wherein said means for mapping comprises means for receiving beam reflection and means for determining phase difference of the beam.

Claims 3-4 (Cancelled)

Claim 5 (Currently Amended): An apparatus as set forth in claim ~~3~~ 1, wherein said ~~means for directing comprises a MEM device that has~~ movable reflective member is a reflective surface portion of a microelectric machine device.

Claim 6 (Currently Amended): An apparatus as set forth in claim 5, wherein said reflective surface portion is movable about two axes relative to a base portion of the microelectronic machine device in response to electrostatic force and said microelectronic machine ~~MEM~~ device comprises means for providing electrostatic force to move said reflective surface portion.

Claim 7 (Currently Amended): An apparatus as set forth in claim 1, wherein means for modulating comprises an electromagnetic energy emission source and a drive component that drives said source ~~at a modulation~~.

Claim 8 (Original): An apparatus as set forth in claim 7, wherein said electromagnetic energy emission source comprises an infrared LED.

Claim 9 (Original): An apparatus as set forth in claim 1, wherein said means for determining an occupant characteristic comprises means for determining occupant presence.

Claim 10 (Original): An apparatus as set forth in claim 1, wherein said means for determining an occupant characteristic comprises means for determining occupant location.

Claim 11 (Original): An apparatus as set forth in claim 1, wherein said means for determining an occupant characteristic comprises means for determining occupant type.

Claim 12 (Original): An apparatus as set forth in claim 1, further comprising means for providing an indication of the determined occupant characteristic to means for determining control of an occupant protection device.

Claim 13 (Original): An apparatus as set forth in claim 12, wherein the occupant protection device is an air bag module.

Claim 14 (Original): A vehicle occupant sensor apparatus comprising:

- beam means for emitting a beam;
- modulation means for modulating the beam;
- scan means for directing the beam toward the occupant in a pattern that moves across a plurality of points on the occupant;
- receiver means for receiving reflection of the beam from the occupant;
- phase determination means for determining phase difference between the emitted beam and the reflection associated with each point on the occupant;
- map means for mapping a contour and location representation of the occupant using the determined phase differences; and
- characteristic determination means for determining at least one occupant characteristic of the occupant using the contour and location representation of the occupant.

Claim 15 (Original): An apparatus as set forth in claim 14, wherein said beam means comprises an infrared LED.

Claim 16 (Currently Amended): An apparatus as set forth in claim 14, wherein said scan means comprises a MEM microelectronic machine device.

Claim 17 (Currently Amended): An apparatus as set forth in claim 14, wherein said MEM microelectronic machine device comprises a reflective surface component that is movable about two axes relative to a base portion of the microelectronic machine device.

Claim 18 (Original): An apparatus as set forth in claim 17, wherein the movement of said reflective surface component about a first of the two axes is an oscillation on the order of 3,000 Hz and the movement of said reflective surface component about a second of the two axes is an oscillation on the order of 30 Hz.

Claim 19 (Original): An apparatus as set forth in claim 14, wherein said modulation means comprising means for modulating the beam at a frequency on the order of 3 MHz.

Claim 20 (Original): An apparatus as set forth in claim 14, wherein said characteristic determination means comprises distance determination means for determining distance to each point on the occupant using determined phase difference.

Claim 21 (Original): An apparatus as set forth in claim 14, further comprising means for providing an indication of the determined occupant characteristic to means for determining control of an occupant protection device.

Claim 22 (Currently Amended): A method of ~~vehicle-occupant~~ sensing an occupant of a vehicle, said method comprising:

modulating a scanned occupant beam;

directing the scanned occupant beam across a scan area located at an occupant seating location of the vehicle by moving a movable reflective member relative to the vehicle;

mapping occupant contours in response to the modulated scanned occupant beam; and

determining an occupant characteristic in response to the mapped contours.

Claim 23 (Original): A method of vehicle occupant sensing comprising:

emitting a beam;

modulating the beam;

directing the beam toward the occupant in a pattern that moves across a plurality of points on the occupant;

receiving reflection of the beam from the occupant;

determining phase difference between the emitted beam and the reflection associated with each point on the occupant;

mapping a contour and location representation of the occupant using the determined phase differences; and

determining at least one occupant characteristic of the occupant using the contour and location representation of the occupant.